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**HALF-LEVEL LIGHT SIGNALING DEVICE****FIELD OF THE INVENTION**

The present invention relates to the technical field  
5 concerning transmission of radio-frequency signals from  
light sources, in particular from half-level signaling  
devices.

**DESCRIPTION OF THE PRIOR ART**

10 As it is known, such signaling devices include a casing  
defined by a lower part embedded in the ground and a  
metallic cap protruding from the casing and housing, in  
one or more separate seats, suitable prisms for lighting  
of the surrounding area.

15 The power and control circuitry is situated in the part  
embedded in the ground, in order to feed the light source  
and to check its operational state and its physical  
integrity.

The cap is made of a material, which bears the  
20 continuative action of the exogenous agents and of the  
mechanical stresses of compression, caused by the passage  
of possible means.

These light sources usually constitute the loads of  
lighting equipments of a certain extension and  
25 importance, which supply airports or anyway areas, in  
which the operational continuity of the above apparatuses  
is essential for security.

Thus, it is necessary to prepare a of radio-frequency  
transmission system, which is safer, cheaper and more  
30 flexible than a cable system (see EP1239704), which

allows exchange of information concerning the operational state of each element of the system with other surrounding elements and with a suitable central unit.

Therefore, each load must have an antenna for this purpose.

As it is known, the half-level light signaling device is made of metallic material, therefore the electromagnetic wave emitted by the antenna possibly introduced into the casing would be strongly weakened, and consequently the comprehensibility of the information signal contained therein would be put at risk.

The degradation of the wave in input/output of the light signaling device can be limited by a suitable housing of the antenna made in the cap protruding from the ground, which mutually isolates the metallic parts.

From the other side, the so obtained recess would require an increase of the resulting thickness of the cap, needed to maintain intact the mechanical compactness with respect to the known solutions.

From one side, the above solution facilitates the signal transmission, limiting its weakening to minimum, from the other side, it is expensive and complicated because it requires, as it has been noted, the definition of a suitable recess containing the antenna in the metallic cap and of a suitable isolation system between the antenna and the metallic part embedded in the ground.

#### SUMMARY OF THE INVENTION

The object of the present invention is to propose a half-level signaling device, in which the cap - antenna

assembly allows a transmission/reception of the signal, free of any weakening or deformation.

Another object of the present invention is to propose the above cap - antenna assembly, which optimizes the  
5 isolation with respect to the mass of the antenna and which does not jeopardize the cap mechanical resistance.

A further object of the present invention is to propose a simple technical solution, which is easy to realize and allows to reduce the production costs.

10 The above mentioned objects are obtained in accordance with the contents of the claims.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

The characteristic features of the invention will be  
15 pointed out in the following description of some preferred but not exclusive embodiments, with reference to the enclosed figures, in which:

- Figure 1 is a top view of a cap for a half-level light signaling device, proposed by the present  
20 invention;
- Figure 2 is a schematic section view taken along II-II of Figure 1.

#### **DESCRIPTION OF THE PREFERRED EMBODIMENTS**

25 Regarding the above Figures, the reference numeral 10 indicates a casing formed by a lower part 4, shown schematically and embedded in the ground (for example road surface, aircrafts runways, etc.) and the reference numeral 1 indicates the cap protruding from the ground.

An antenna 2, connected to the cap 1, has terminals 5a and 5b connected to the circuitry situated in the lower part 4 of the light signaling device, not shown, as it is known.

- 5 The cap includes one or more apertures 3a and 3b for housing suitable prisms (not shown, as they are known), aimed at sending relative light beams, generated by one or more lamps (not shown) inserted in the lower part 4 of the casing, to the surrounding area.

- 10 The cap is obtained from a synthetic resin, by molding.  
In particular, the antenna is introduced into the mold before the molding operation, so that at the end it is completely dipped to form one body with the cap.

- The cap, made of metallic material, forms seats 9, which  
15 receive means (not shown) for removably fastening the cap to the lower part 4.

According to an interesting variant, besides the antenna, also prisms can be introduced into the mold during the molding operation.

- 20 The prisms are rigidly fastened to the cap, forming a single body therewith.

- The cap - antenna assembly, with the possible above described variant, defines an extremely compact and rigid technical solution, which allows a maximum reduction of  
25 the production costs.

Moreover, the isolating material constituted by synthetic resin, which forms the cap ensures the best isolation and working of the antenna, avoiding the weakening mentioned in the introductory note.

- 30 A further advantage of the present invention lies in the fact that it allows a perfect anchorage of the antenna

with the cap containing it, avoiding any relative movement between the two considered elements, thus protecting it from external causes, such as atmospheric agents and/or mechanical stresses.

- 5 The production of the prism by molding allows, during the design step, the antenna to be situated very accurately, so as to allow a prefixed irradiation angle for the transmission/reception of the electromagnetic waves from/to the antenna.
- 10 It is understood that what above has been described as a mere, not limiting example. Therefore, it is obvious that any changes or variants applied thereto remain within the protective scope defined by the following claims.

**CLAIMS**

1. Half-level light signaling device formed by a casing,  
including a lower part, which houses electrical and/or  
5 electronic circuits and at least one light source, and a  
cap protruding from the ground and removably fastened to  
said lower part and having at least one aperture, to  
which a prism is connected, so as to send outwards a  
light beam produced by the light source, characterized in  
10 that it includes at least one antenna, embedded in the  
isolating material making up the cap, and having the  
terminals accessible from the lower part of the casing.
2. Signaling device, as claimed in claim 1, characterized  
15 in that said cap is made of synthetic resin.
3. Signaling device, as claimed in claim 1, characterized  
in that said prism is rigidly fastened to the cap.

